Multipart Access
User Guide and Menu Reference

CADDS® 5 15.0

DOC38211-006

Parametric Technology Corporation

Copyright © 2007 Parametric Technology Corporation. All Rights Reserved.
User and training guides and related documentation from Parametric Technology Corporation and its subsidiary companies (collectively "PTC") is subject to the copyright laws of the United States and other countries and is provided under a license agreement that restricts copying, disclosure, and use of such documentation. PTC hereby grants to the licensed software user the right to make copies in printed form of this documentation if provided on software media, but only for internal/personal use and in accordance with the license agreement under which the applicable software is licensed. Any copy made shall include the PTC copyright notice and any other proprietary notice provided by PTC. Training materials may not be copied without the express written consent of PTC. This documentation may not be disclosed, transferred, modified, or reduced to any form, including electronic media, or transmitted or made publicly available by any means without the prior written consent of PTC and no authorization is granted to make copies for such purposes.

Information described herein is furnished for general information only, is subject to change without notice, and should not be construed as a warranty or commitment by PTC. PTC assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

The software described in this document is provided under written license agreement, contains valuable trade secrets and proprietary information, and is protected by the copyright laws of the United States and other countries. It may not be copied or distributed in any form or medium, disclosed to third parties, or used in any manner not provided for in the software licenses agreement except with written prior approval from PTC.

UNAUTHORIZED USE OF SOFTWARE OR ITS DOCUMENTATION CAN RESULT IN CIVIL DAMAGES AND CRIMINAL PROSECUTION.

For Important Copyright, Trademark, Patent, and Licensing Information: For Windchill products, select About Windchill at the bottom of the product page. For InterComm products, on the Help main page, click the link for Copyright 2007. For other products, select Help > About on the main menu for the product.

UNITED STATES GOVERNMENT RESTRICTED RIGHTS LEGEND
This document and the software described herein are Commercial Computer Documentation and Software, pursuant to FAR 12.212(a)-(b) (OCT'95) or DFARS 227.7202-1(a) and 227.7202-3(a) (JUN'95), and are provided to the US Government under a limited commercial license only. For procurements predating the above clauses, use, duplication, or disclosure by the Government is subject to the restrictions set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software Clause at DFARS 252.227-7013 (OCT'88) or Commercial Computer Software-Restricted Rights at FAR 52.227-19(c)(1)-(2) (JUN'87), as applicable. 02202007

Parametric Technology Corporation, 140 Kendrick Street, Needham, MA 02494 USA

Table of Contents

Preface

Related Documents ____ vii
Book Conventions ____ vii
Window Managers and the User Interface ____ viii
Online User Documentation ____ viii
Online Command Help ____ ix
Printing Documentation ____ x
Resources and Services ____ x
Documentation Comments ____ x

Introduction

Overview of the Multipart Access Tool ____ 1-2

How Multipart Access Works ____ 1-3

Multipart Access Aids ____ 1-5

- Using Multipart Filters ____ 1-5
- Using Point-on-Entity Constraints ____ 1-5
- Using Tags ____ 1-6

Using Fonted Instances ____ 1-7

Considerations ____ 1-8

- Surface Appearance ____ 1-8
- Layering ____ 1-8
- Extents ____ 1-8
- Echoing Layers ____ 1-8

Using Other Software Packages _____ 1-9
Clipping _____ 1-9
Dynamic Viewing _____ 1-9
Plotting _____ 1-9
Dimensioning _____ 1-9
Imagedesign II _____ 1-9
CADDShade II _____ 1-10
Getting Started _____ 1-11

Using Multipart Access

Overview of Multipart Task Sets _____ 2-2
Using Orientation Options _____ 2-4
View Part _____ 2-8
Viewing Instances _____ 2-10
Example 1 _____ 2-10
Example 2 _____ 2-11
Example 3 _____ 2-12
Changing the Appearance of Instances _____ 2-13
Deleting Instances _____ 2-14
Example _____ 2-14
Highlighting Instances _____ 2-15
Example _____ 2-16
Dehighlighting Instances _____ 2-16
Example _____ 2-16
Making Instances Invisible _____ 2-17
Example _____ 2-17
Making Instances Visible _____ 2-18
Example _____ 2-18
Listing Information about Instances _____ 2-20
Full _____ 2-20
Full with Highlight _____ 2-20
Reference _____ 2-20
Journal _____ 2-20
ID Name _____ 2-21

Example 1 2-21
Example 2 2-22
Example 3 2-22

Saving a Display of Instances 2-24
Restoring a Display 2-25
Saving a Changed Display 2-25
Updating a Display 2-26
Example 1 2-26
Example 2 2-27

Selecting View Part Modes 2-28
Example1 2-28
Example 2 2-29

Listing View Part Modes 2-30
VPO 2-30
VPALL 2-30
VP 2-30
VP 2-30
Example 2-30

Repositioning Instances 2-31
Moving Instances 2-34
Example 2-34
Rotating Instances 2-35
Example 1 2-35
Example 2 2-37
Example 3 2-38
Orienting Instances 2-39
Example 1 2-39
Example 2 2-42
Example 3 2-43

System Messages

Multipart Access System Messages A-2
A A-2
C A-2
I A-3

N _____ A-3
P _____ A-4
S _____ A-4
T _____ A-4
U _____ A-5
V _____ A-5
Y _____ A-5

Notes to the System Administrator

Adding vp_links Directories _____ B-2
Creating vp_links Directories for New Parts _____ B-2
Creating vp_links Directories for Existing Parts _____ B-2
Recovering a Display _____ B-3
Removing Hard Links _____ B-3
Product Notes _____ B-4

Preface

Multipart Access User Guide and Menu Reference provides instructions for all who are using the Multipart Access software.

Related Documents

The following documents may be helpful as you use *Multipart Access User Guide and Menu Reference*:

- *CADDS 5 READ ME FIRST Notes*
- *Explicit Modeling User Guide and Menu Reference*
- *Explicit Solid Modeling User Guide and Menu Reference*

Book Conventions

The following table illustrates and explains conventions used in writing about CADDS applications.

Convention	Example	Explanation
Menu selections and options	List Section option, Specify Layer field	Indicates a selection you must make from a menu or property sheet or a text field that you must fill in.
User-selected graphic location	X, d_1 or P1	Marks a location or entity selection in graphic examples.

User input in CADDS text fields and on any command line	`cvaec.hd.data.param`
	
	`tar -xvf /dev/rst0`
		Enter the text in a CADDS text field or on any command line.

System output	`Binary transfer complete.`	Indicates system responses in the CADDS text window or on any command line.
Variable in user input	`tar -cvf /dev/rst0` filename	Replace the variable with an appropriate substitute; for example, replace filename with an actual file name.

Convention	Example	Explanation
Variable in text	tagname	Indicates a variable that requires an appropriate substitute when used in a real operation; for example, replace tagname with an actual tag name.
CADDS commands and modifiers	INSERT LINE TANTO	Shows CADDS commands and modifiers as they appear in the command line interface.
Text string	`"SRFGROUPA"` or `'SRFGROUPA'`	Shows text strings. You must enclose text string with single or double quotation marks.
Integer	n	Supply an integer for the *n*.
Real number	x	Supply a real number for the *x*.
`#`	`# mkdir /cdrom`	Indicates the root (superuser) prompt on command lines.
`%`	`% rlogin` remote_system_name `-l root`	Indicates the C shell prompt on command lines.
`$`	`$ rlogin` remote_system_name `-l root`	Indicates the Bourne shell prompt on command lines.

Window Managers and the User Interface

According to the window manager that you use, the look and feel of the user interface in CADDS can change. Refer to the following table:

Look and Feel of User Interface Elements

User Interface Element	Common Desktop Environment (CDE) on Solaris and HP	Window Manager Other Than CDE on Solaris, HP, and Windows
Option button	ON — Round, filled in the center OFF — Round, empty	ON — Diamond, filled OFF — Diamond, empty
Toggle key	ON — Square with a check mark OFF — Square, empty	ON — Square, filled OFF — Square, empty

Online User Documentation

Online documentation for each book is provided in HTML if the documentation CD-ROM is installed. You can view the online documentation in the following ways:

- From an HTML browser
- From the Information Access button on the CADDS desktop or the Local Data Manager (LDM)

Please note: The LDM is valid only for standalone CADDS.

You can also view the online documentation directly from the CD-ROM without installing it.

From an HTML Browser:

1. Navigate to the directory where the documents are installed. For example,

   `/usr/apl/cadds/data/html/htmldoc/` (UNIX)

   Drive:`\usr\apl\cadds\data\html\htmldoc\` (Windows)
2. Click `mainmenu.html`. A list of available CADDS documentation appears.
3. Click the book title you want to view.

From the Information Access Button on the CADDS Desktop or LDM:

1. Start CADDS.
2. Choose Information Access, the i button, in the top-left corner of the CADDS desktop or the LDM.
3. Choose DOCUMENTATION. A list of available CADDS documentation appears.
4. Click the book title you want to view.

From the Documentation CD-ROM:

1. Mount the documentation CD-ROM.
2. Point your browser to:

   CDROM_mount_point`/htmldoc/mainmenu.html` (UNIX)

   CDROM_Drive:`\htmldoc\mainmenu.html` (Windows)

Online Command Help

You can view the online command help directly from the CADDS desktop in the following ways:

- From the Information Access button on the CADDS desktop or the LDM
- From the command line

From the Information Access Button on the CADDS Desktop or LDM:

1. Start CADDS.
2. Choose Information Access, the i button, in the top-left corner of the CADDS desktop or the LDM.
3. Choose COMMAND HELP. The Command Help property sheet opens displaying a list of verb-noun combinations of commands.

From the Command Line: Type the exclamation mark (!) to display online documentation before typing the verb-noun combination as follows:

```
#01#!INSERT LINE
```

Printing Documentation

A PDF (Portable Document Format) file is included on the CD-ROM for each online book. See the first page of each online book for the document number referenced in the PDF file name. Check with your system administrator if you need more information.

You must have Acrobat Reader installed to view and print PDF files.

The default documentation directories are:

- `/usr/apl/cadds/data/html/pdf/`doc_number`.pdf` (UNIX)
- CDROM_Drive`:\usr\apl\cadds\data\html\pdf\`doc_number`.pdf` (Windows)

Resources and Services

For resources and services to help you with PTC (Parametric Technology Corporation) software products, see the *PTC Customer Service Guide*. It includes instructions for using the World Wide Web or fax transmissions for customer support.

Documentation Comments

PTC welcomes your suggestions and comments. You can send feedback electronically to `doc-webhelp@ptc.com`.

Chapter 1

Introduction

The introduction provides an overview of the Multipart Access Tool.

- Overview of the Multipart Access Tool
- How Multipart Access Works
- Multipart Access Aids
- Using Fonted Instances
- Considerations
- Using Other Software Packages
- Getting Started

Overview of the Multipart Access Tool

Multipart Access is a tool that supports the presentation of many parts within a single active part model without impacting the size of the active part's database.

With Multipart Access, more than one user can reference the same model simultaneously. You can increase communications between users by providing

- References on which to build new geometry
- Part checking and verification
- Geometry that can be traced to create a drawing
- Standardized information that ensures user concurrence

Multipart Access is designed to increase production in environments dedicated to the geometric building process. It extends operations beyond the limits of the 64K entity database.

How Multipart Access Works

Multipart Access lets you look at and reference geometry of nonactive parts from within the active part.

You can view and reference the geometry of other parts without impacting the size of the active part's database. While in an active part, you can use Multipart Access to display the model geometry of another part. This other part is called the referenced or nonactive part.

Multipart Access takes a "snapshot" of the referenced part's geometry and lets you view it in your active part by

- Reading the model graphics data from the `_gr` file
- Creating a link to the referenced part's database at the `_pd` level

The snapshot is of the most recently filed version of the part.

The model graphics data in the `_gr` file is read only once per referenced part. The geometric snapshot of the referenced part is called an instance. Instances are read-only and not associated with the active part's database. Once the `_gr` file is read and the link is created, they are shared by multiple instances of the same referenced part.

You can locate and orient instances anywhere in the active part. You can reference the geometry in an instance to build new geometry in the active part. You cannot, however, manipulate the geometry of an instance.

A display of instances can consist of

- A single instance of a referenced part
- Multiple instances of a single referenced part
- Single instances of multiple referenced parts
- Multiple instances of multiple referenced parts

You can modify a display of instances and save a display at any point during an active session.

Using Multipart Access, you can

- Add instances to the active part
- Move, rotate, and orient instances in the active part

- Delete instances from the active part
- Save the display of instances
- Change the graphic appearance of instances
- List information about instances
- Save a display of instances in an execute file, and regenerate the saved display

Multipart Access Aids

Multipart Access provides you with ways of being selective when identifying instances within the active part.

There are three types of aids that provide additional ease when using the software to reference geometry in instances and in the active part. Multipart Access filters are modal and can be used with point-on-entity constraints. Tags are also available to aid in identifying geometry.

Using Multipart Filters

Multipart Access filters can be used to reference geometry in instances and the active part. Four filters are available for use and can be found on the top bar of the Explicit desktop.

To access these filters, select the mask from the top bar; the Multipart Access filters are the last four found in the third row down. Each filter allows you to be selective when gathering information or making a selection.

VP (ID name) : Identifies a location on a single instance. You must specify the instance either by selecting it or entering its ID name.

VPOFF : Turns off Multipart Access filters. When you use VPO, the system defaults to searching only the active part database.

VPALL : Identifies locations on both instances and the active part. You must select the location. When you use VPA, the system searches the active part database before searching the instance database. If you do not plan to identify locations in your active part, use VPE.

VPE : Identifies locations on instances only. You must select the location on the instance.

Using Point-on-Entity Constraints

You can use the following standard point-on-entity constraints with Multipart Access filters:

- END
- NEAR
- ORG
- SVAL

- VERT
- INTOF

These point-on-entity constraints can be entered before or after the Multipart Access filters; for example, ORG VP or VPE END.

Each point-on-entity constraint restricts selection to a specific type of entity reference for the rest of the command. To release this restriction, select another point-on-entity constraint or select LOC to cancel the point-on-entity method. Selecting LOC tells the system that the next input is a location.

Using Tags

You can use TAG to select an entity by name if the entity has previously been assigned a name.

In large or densely organized parts, it is possible to inadvertently identify more than one entity using explicit coordinates or the mouse. TAG provides an unambiguous method for selecting entities. It references an entity by a tag name rather than by a location, providing precise information on which entity you are selecting.

When using Multipart Access, you cannot tag an entity within an instance. However, if there is a tagged entity within a referenced part, you can use the tag name to identify locations on an instance of that referenced part.

When using TAG, the following restrictions apply:

- If an entity in the active part has the same tag name as an entity in an instance, the system selects the tagged entity in the active part, unless the tag name is preceded by VPE or VP <ID name>.
- If the same tag name is used in more than one instance, the system selects the first tagged entity it locates, unless the tag name is preceeded by VP <ID name>.

You can also specify a range of tags.

Using Fonted Instances

Instances can be viewed with the original fonting from the referenced part.

The fonting displayed in the active part is based on a one-to-one correspondence between the active part drawing and views defined, and the referenced part drawing and views defined. The font and view definitions in the referenced part, along with the view definitions of the active part, govern how fonts are displayed.

The views in a referenced (viewed) part are matched to the views in an active part by sequence. Therefore, it is important that the noital in which views are defined be consistent in both referenced and active parts.

Please note: In order to have consistent fonting, views must be defined consistently. If you do not define the views consistently, you will not get what you expect. For example, if the first view defined in the active part drawing is a TOP view while the first view defined in the referenced part drawing is a FRONT view, any view-specific fonting that had been done in the FRONT view of the referenced part would appear in the TOP view of the active part.

View-scale fonts, as defined in the font definition file, appear only as defined in the referenced part.You cannot rescale the fonting of viewed part entities.

Fonting by default is turned off. To enable fonting, use the Retain Original Fonting option on the View Part property sheet.

Considerations

Multipart Access works in Model mode or Draw mode. However, the mode affects only the active part's database, because instances are read-only and are not associated with the active part's database.

Since an instance is a view of its referenced part's model geometry, the following characteristics are determined by the referenced part:

Surface Appearance

Surface appearance graphics (font and mesh) of an instance are not view-specific. Instances are displayed with solid lines.

Layering

The layering scheme of an instance is determined by the layering scheme of its referenced part.

While the referenced part determines the geometric content of an instance, the following characteristics of the active part affect your display of instances.

Extents

While drawing sizes of the active and referenced parts can be different, CADDS reflects only the extents of the active part. If an instance references a part with a larger drawing size, you can use the ZOOM VIEW command to manipulate the view.

Echoing Layers

If you echo layers in the active part, the same layers are echoed in any instances displayed. For example, if you echo layers one through ten in the active part, only layers one through ten of the instance are displayed.

Instances do not impact database size but may impact performance. For example, instances impact how quickly the system repaints the graphics; the more instances you display and/or the more entities within instances, the longer the system takes to repaint.

Using Other Software Packages

You can use many global options and software applications in conjunction with Multipart Access, including informational options and options that reference the geometry of an instance.

When using the global options or software applications with Multipart Access, remember:

- Instances are read-only and are not associated with the active part's database.
- Multipart Access treats an instance as though it were a single entity.
- Manipulative tasks affect the active part only, unless the VP getdata modifiers are selected. Some manipulative tasks allow you to select a viewed entity and copy it into the active part's database. You can move and copy, and put the copy into the active part's database.

Clipping

The system displays instances in all views, just as it does model entities. You can use clipping options with views of instances.

Dynamic Viewing

Using dynamic viewing options in the active part to zoom, scroll, or rotate the drawing or views affects both the instances and the active part.

Plotting

Multipart Access provides full plotting capabilities for instances. Using the options found on the View Part property sheet, you can further enhance these capabilities.

Dimensioning

You cannot use options that associate dimensions with instances. Any dimensions you add are filed with the active part. When adding dimensions to the active part, remember to make sure that the dimensions are inserted as model, non-associative dimensions.

Imagedesign II

With the exception of Assign and List Sattribute options, Imagedesign II works in conjunction with Multipart Access.

CADDShade II

CADDShade II works with Multipart Access if an up-to-date `_gr` file exists. You must make sure that the `_gr` file contains the drawing and model graphics data along with the tessellation data.

Getting Started

Multipart Access requires that a View Part Links (`vp_links`) directory reside in every referenced part's database at its `_pd` file level. This directory provides the proper permissions to ensure read - only access to the referenced part.

To create a `vp_links` directory automatically for each new part, add the `CADDSENABVP` variable to your `.caddsrc` file. Edit your `.caddsrc` file and add the following command line:

```
setenv CADDSENABVP'yes'
```

See "Creating vp_links Directories for Existing Parts" for information on adding the `vp_links` directory to existing parts.

Chapter 2

Using Multipart Access

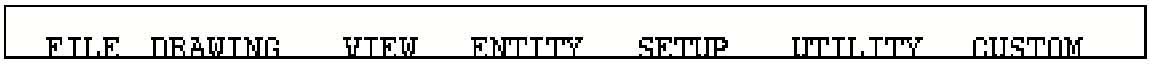
This chapter explains the use of Multipart Access, including orientation options, repositioning instances, and the use of the View Part Option, including the selection and listing of viewed parts.

- Overview of Multipart Task Sets
- Using Orientation Options
- View Part
- Viewing Instances
- Changing the Appearance of Instances
- Listing Information about Instances
- Saving a Display of Instances
- Selecting View Part Modes
- Listing View Part Modes
- Repositioning Instances

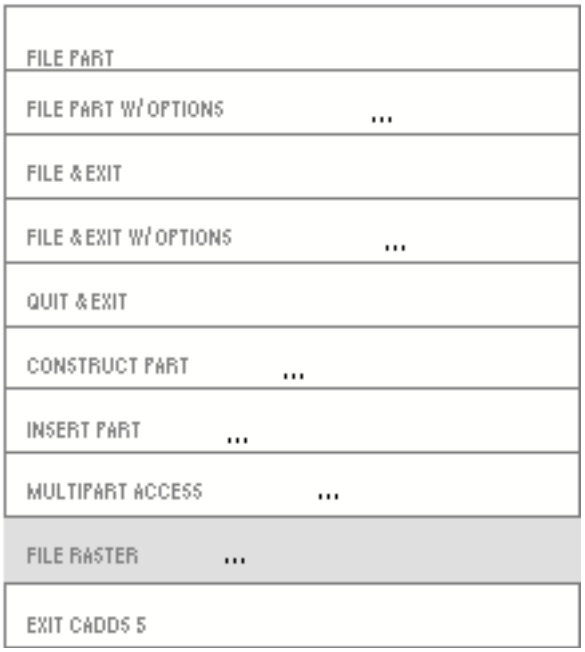
Overview of Multipart Task Sets

When you have selected Multipart Access from the FILE Environment Management globals, you will be able to access all the options available.

The Multipart Access task set can be reached from the Environment Management area of the top bar.

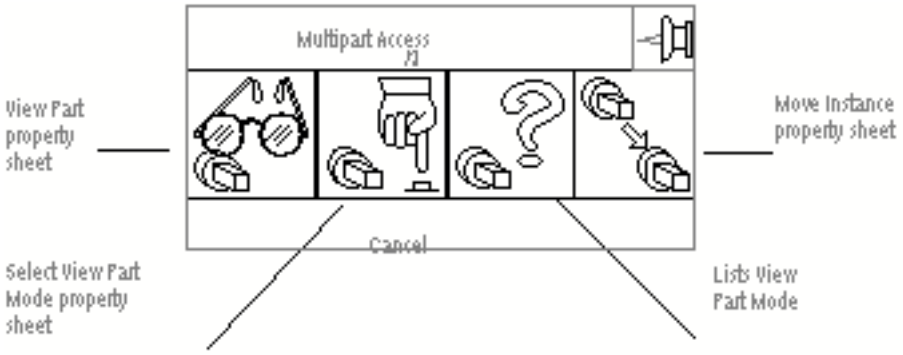


1. Move the cursor to the word FILE and select it. The following appears.



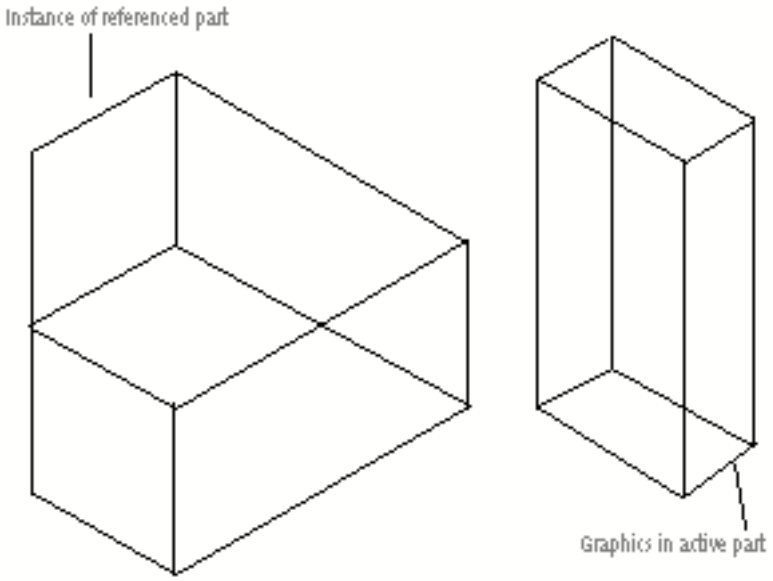
2. Slide the cursor down the list of choices and select MULTIPART ACCESS.

Once you have selected MULTIPART ACCESS from the list of options, the Multipart Access task set appears.



The graphic below will be used throughout this chapter. The following information is based on this graphic.

- The active part is named BRACE.
- The referenced part is named SHAPE.
- The instance of the referenced part is named DELTA.
- The view of the active part is isometric.



Each of the eight options for View Part will be discussed separately.

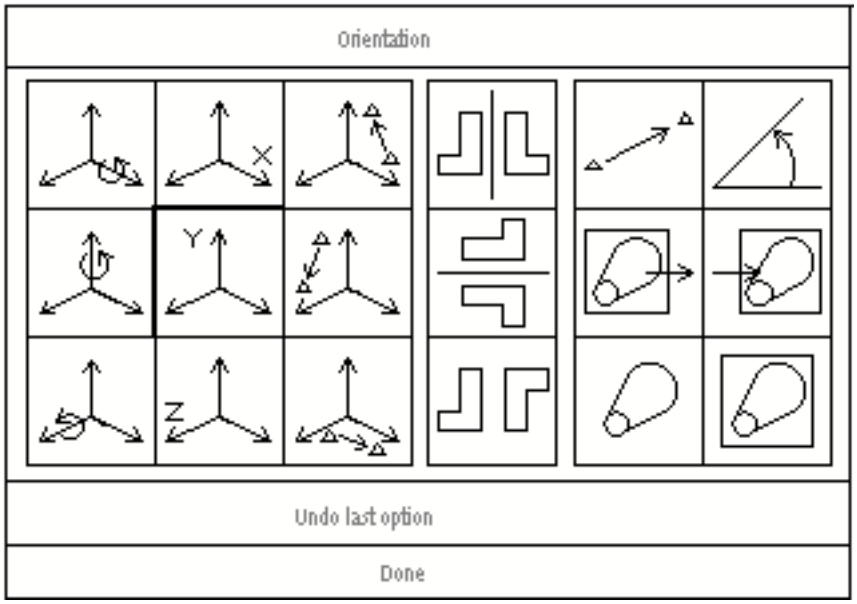
Using Orientation Options

The View Part property sheets allow you to change the orientation while you are viewing, rotating, or rotating and translating the instance.

The Specify Orientation option appears when you have selected the View icon and By Part Name option from the View Part property sheet. The Specify Orientation option also appears on the Instances property sheet when you have selected the Instances icon from the Multipart Access menu.

The Orientation property sheet is explained here because it is used throughout the process of creating and manipulating instances.

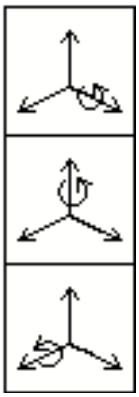
When you select the Specify Orientation option on a property sheet and then select Apply, the following property sheet appears. The Apply option turns to Abort, to allow you to exit from the action without doing anything.



Each of these orientation options is explained on the following paragraphs. They are grouped by similar function.

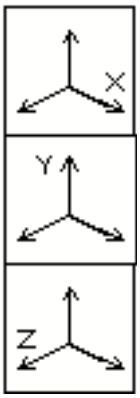
When you use these orientation options, the order in which you select them determines what the final outcome of the graphic change will be.

Undo last option erases the last selected option.Done ends the selection of the orientation options.



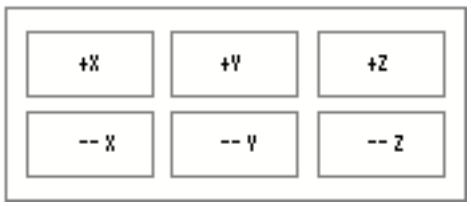
Rotates the instance the given number of degrees about the specified axis. Rotation is clockwise with respect to the positive direction of the axis. By default, they refer to the axis in model space (TOP Cplane). All rotation is done about the origin of the instance. If AX, AY, or AZ are not used, the default is 0 degrees rotation.

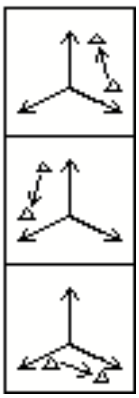
When you choose one of these, the scientific calculator appears so that you can enter the degrees of rotation. If you want a negative value, enter the angle, then select the +/- on the keypad.



Points the selected axis in the direction of the axis selected on the direction menu (PX, PY, PZ).

When you choose one of these, the direction menu appears so that you can select the direction in which to point the selected axis.

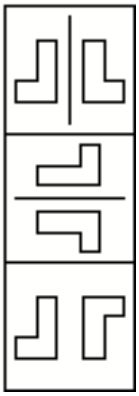




Turns the x-, y-, or z-axis in the direction of a selected line or vector (TX, TY, TZ).

If you select one of these, you are requested to select two locations in the graphics window to define direction for the axis. After you have done this, the system

allows you to continue selecting from the Orientation property sheet or to continue the process by selecting Done.



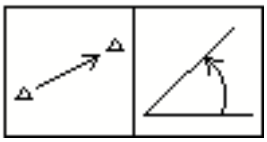
Mirrors image about the y-axis.

Mirrors image about the x-axis.

(These first two can be used together, but cannot be used with the bottom one.)

Mirrors image about both the x- and y-axis.

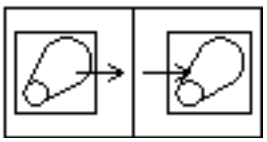
(Cannot be used with the top two.)



The Axis icon allows you to select the axis (through two location selections) around which the rotation of a specified number of degrees is about to be performed. Can be used with the Angle icon on the right.

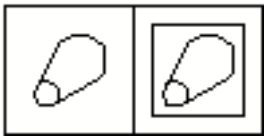
The Angle icon rotates the image the given number of degrees about the z-axis, the normal rotation (similar to AZ). To rotate about another axis, use the Axis icon.

When you select the Angle icon, the scientific calculator appears so that you can enter the degrees of rotation. If you want a negative value, enter the angle, then select the +/- on the keypad.



These two icons must be used together. You can rotate the appearance of the view from the first view selected to the appearance of the second view selected.

After selecting the From icon, you are asked to select the first view. This selection becomes the X0Y0Z0 coordinates of the second view. Then select the To icon. You are asked to select the second view.



Used with AX, AY, AZ and TX, TY, TZ on this property sheet.

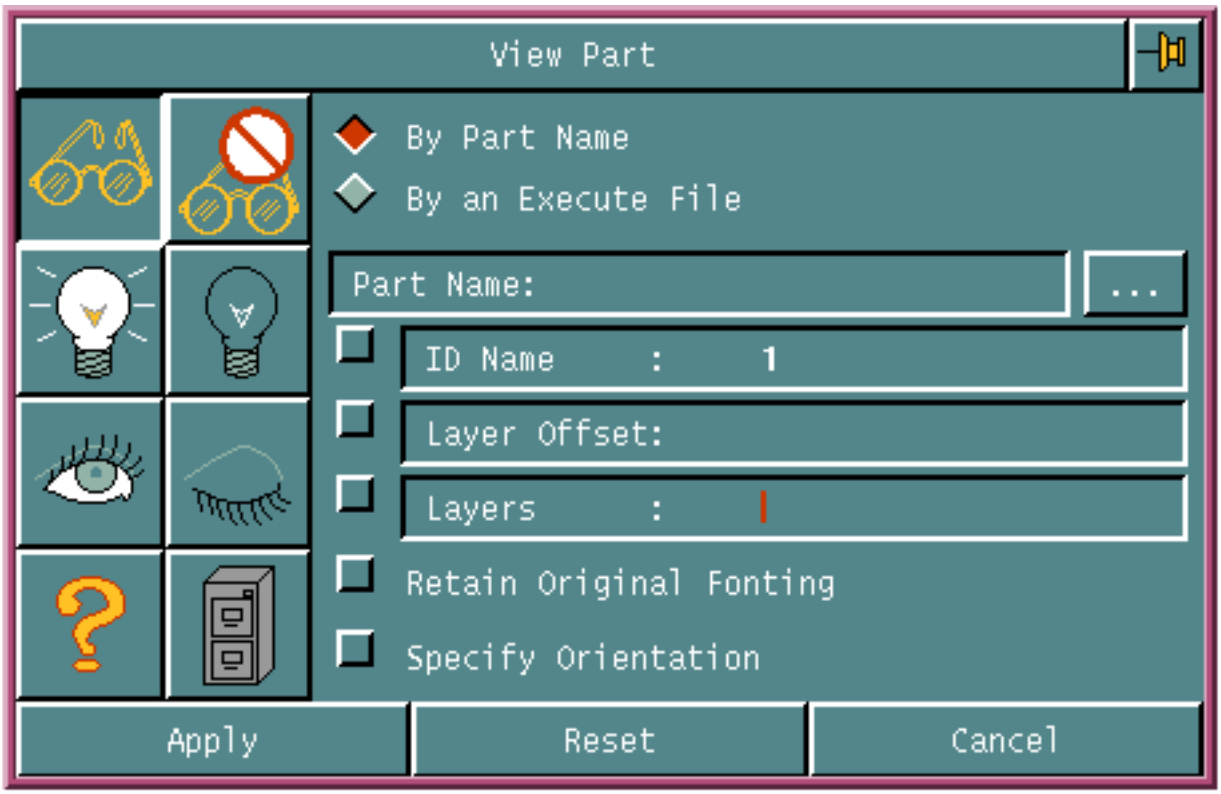
The Model icon specifies that you want the rotation done about the model space (TOP Cplane) axis.

The View icon specifies that you want the rotation done about the view space axis.

View Part

View Part is used to create and delete instances, save and update a display of instances, assign unique names to instances, list information about instances, and change the graphic appearance of instances.

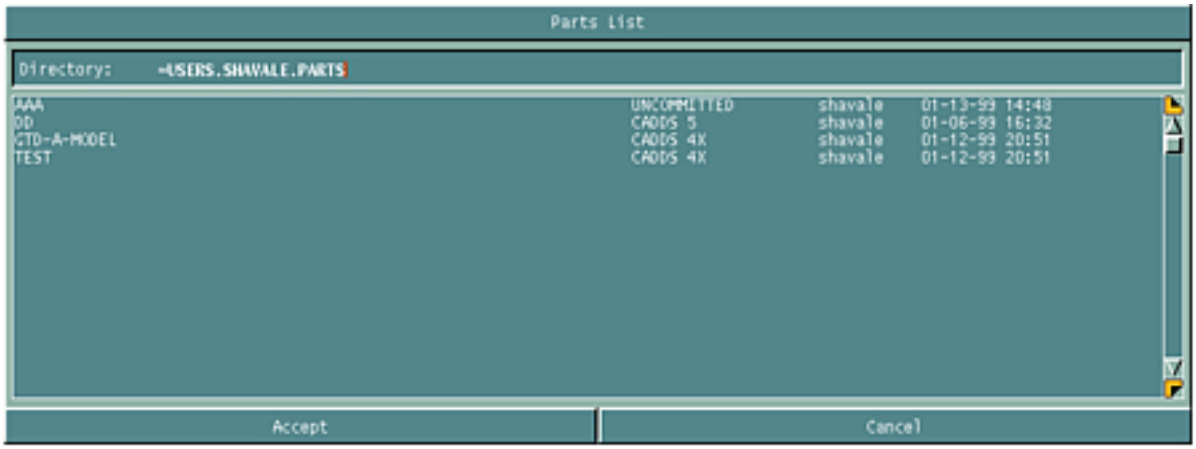
The View Part property sheet shown below comes from the View Part icon on the Multipart Access task set. It contains the default options and characteristics defined by the software.



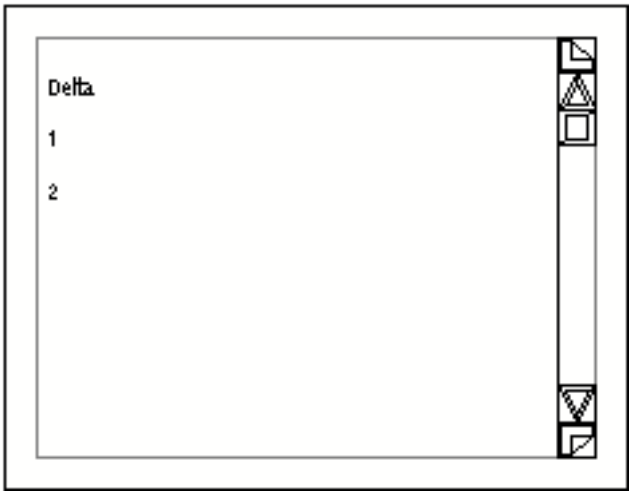
By Part Name requires you to enter the part name of the part that you want to view.

By an Execute File requires you to enter the name of the execute file that contains information about a display of instances that you have saved. See “Saving a Display of Instances” on page 2-24.

You can enter the name of the part that you want to view, or you can select the ellipsis option and choose a part name from the list that appears in the window.



When you use this property sheet and select ID Name, you may select an instance name from the list that appears in the window below, or you may enter the name in the field.



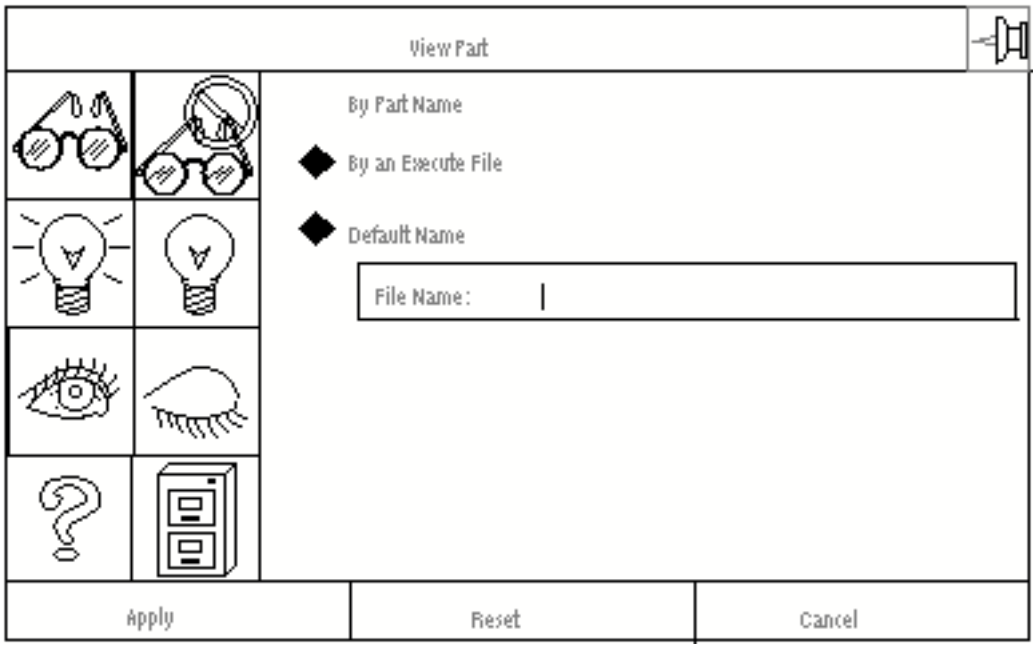
Choose the Layer Offset option if you want to offset the layers of the referenced part to the value indicated. When you select Layer Offset, the layer calculator appears and you can enter the value for the layer offset you want.

Choose the Layer option to specify the layer number of the referenced part to be offset by the Layer Offset option.

Viewing Instances

Each instance has a unique ID name. You can assign an ID name to an instance or let the system assign a name for you. You can also offset the instance by a specified number of layers; in this way you are keeping the active part geometry separate from the instance geometry.

When you select the By an Execute File option, the default View Part property sheet changes to the following.



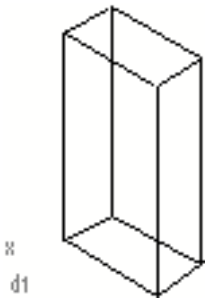
In each of the following examples, you are in the part named BRACE and you have the rectangular three-dimensional geometry of the active part on the screen.

Example 1

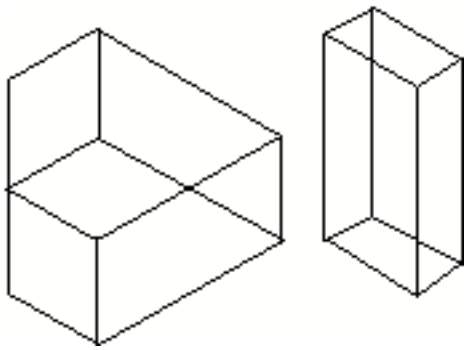
To view a new instance of the referenced part named SHAPE

1. Select the View Part icon from the Multipart Access task set.
2. Select the View icon from the View Part property sheet.
3. Select the By Part Name option, and select the ellipsis option. A parts list window appears. Select the name of the referenced part SHAPE from the list of available parts.
4. Select_Accept from the parts list window. The name `SHAPE` appears in the Part Name field.

5. Select Apply from the View Part property sheet.
6. Select the location where you want the origin (X0Y0Z0) of the instance to be located in the active part.



7. Select Done from the Utilities menu.



Example 2

To view an existing, saved instance of the referenced part named SHAPE

1. Select the View Part icon from the Multipart Access task set.
2. Select the View icon from the View Part property sheet.
3. Select the By an Execute File option, and select the Filename field. Fill in the name of the referenced part SHAPE.
4. Select Apply from the View Part property sheet.
5. Select the location where you want the origin (X0Y0Z0) of the instance to be located in the active part.
6. Select Done from the Utilities menu.

Example 3

To view a new instance from the referenced part without giving the instance a unique name

1. Select the View Part icon from the Multipart Access menu.
2. Select the View icon from the View Part property sheet.
3. Select the By Part Name option, and fill in the name of the referenced part SHAPE in the Filename field.
4. Select Apply from the View Part property sheet.

   The instance is assigned the name 1 if it is the first unnamed instance within the part. The system increments the number by one each time an unnamed instance is created within the active part. The instance is labeled to show clearly what is placed in the active part.

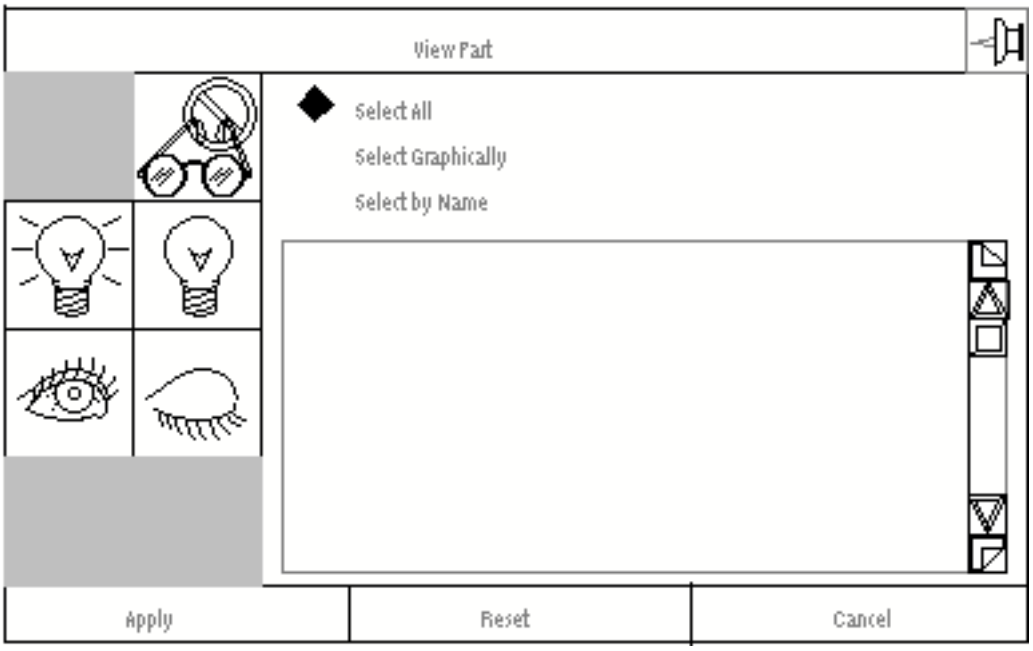
Changing the Appearance of Instances

To delete, highlight, and dehighlight an instance or make an instance visible or invisible, use the same property sheet (shown below) within the View Part property sheet.

You can modify the graphic appearance of instances. Since the system treats each instance as though it were one entity, the entire instance is graphically modified.

You can highlight or temporarily hide from view specific instances of the display or all instances of the display. To identify the instance modified, select its name or select it graphically. You can also select all the instances in the active part, or identify more than one instance by selecting it graphically.

When you select deleting, highlighting, and dehighlighting or making an instance visible or invisible, the following property sheet appears.

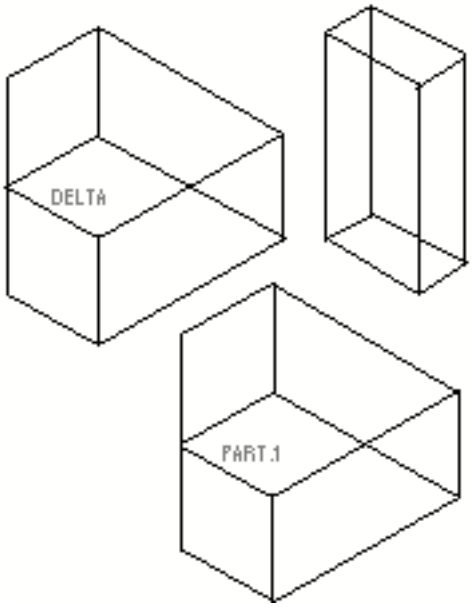


Deleting Instances

You can delete an instance from the active part in one of the following three ways:

- Select and delete the name from the ID Name list.
- Select and delete the instance or instances in the graphics window.
- Delete all instances in the active part.

If you choose to delete all instances in the active part, the model graphics data and the link to all referenced parts are deleted.

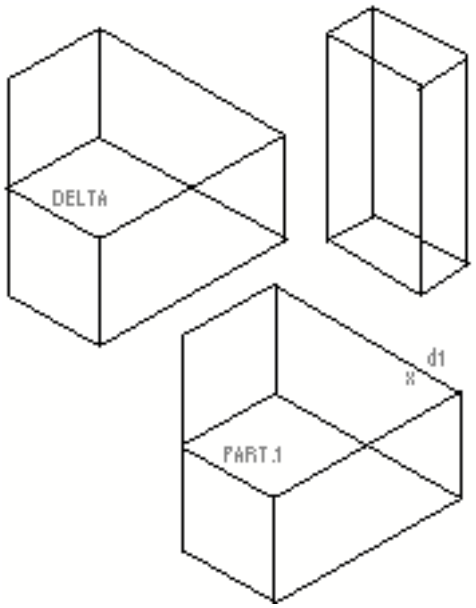


In the following example, the active part contains two identical instances. One is named DELTA and the other is named PART.1.

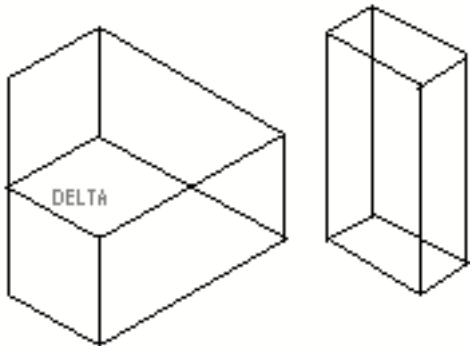
Example

1. Select the View Part icon from the Multipart Access task set.
2. Select the Delete icon on the View Part property sheet.
3. Select the Select Graphically option.
4. Select Apply from the View Part property sheet.

5. Select the instance that you wish to delete. In this case select the instance labeled PART.1.



6. Select Done from the Utilities menu.



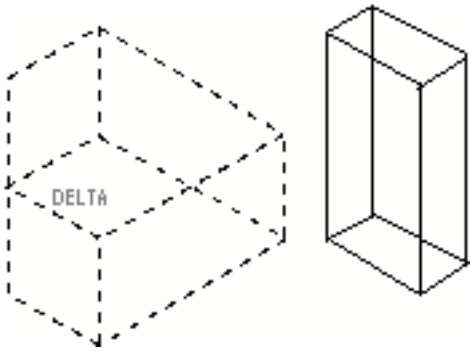
Highlighting Instances

You can identify one or more of the instances with a system-defined dashed font.

Example

To highlight an instance with a system-defined dashed font

1. Select the View Part icon from the Multipart Access task set.
2. Select the Highlight icon on the View Part property sheet. Three options are available to you as a means of identifying the instance: Select All, Select Graphically, or Select by Name.
3. Select the Select by Name option and choose DELTA from the list of instances in the active part.
4. Select Apply from the View Part property sheet.



Dehighlighting Instances

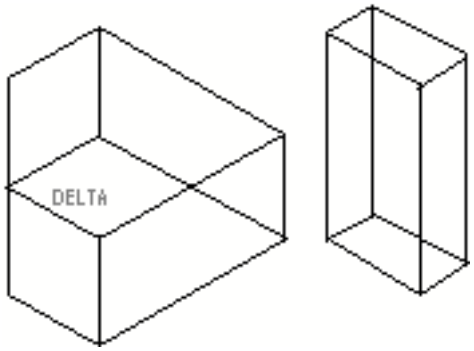
You can change the instances with the system-defined dashed font back to solid font.

Example

To change the instance back to a solid font

1. Select the View Part icon from the Multipart Access task set.
2. Select the Dehighlight icon on the View Part property sheet. Three options are available to you as a means of identifying the instance: Select All, Select Graphically, or Select by Name.
3. Select the Select Graphically option and select the instance that is highlighted.

4. Select Apply from the View Part property sheet.



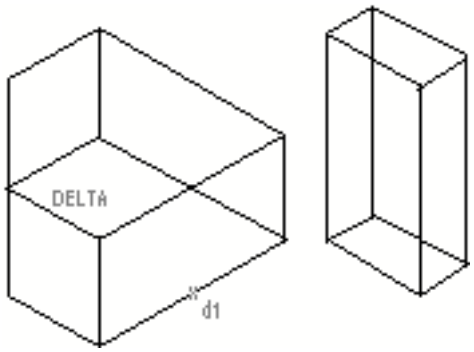
Making Instances Invisible

You can temporarily hide or make invisible one or all of the instances within a view of the active part.

Example

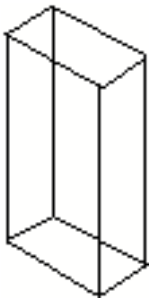
To make an instance invisible

1. Select the View Part icon from the Multipart Access task set.
2. Select the Invisible icon on the View Part property sheet. Three options are available to you as a means of identifying the instance: Select All, Select Graphically, or Select by Name.
3. Select the Select Graphically option and select the instance that you want to become invisible.
4. Select Apply from the View Part property sheet.
5. Select the instance that you want to make invisible.



6. Select Done from the Utilities menu.

The selected instance will be made invisible in the active part.



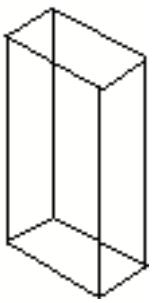
Making Instances Visible

You can redisplay one or more instances that were hidden or invisible from the view of the active part.

Example

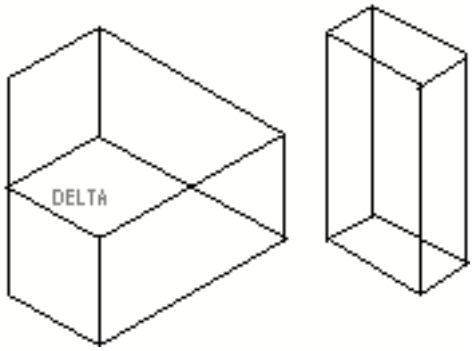
To make an instance visible

1. Select the View Part icon from the Multipart Access task set.
2. Select the Visible icon on the View Part property sheet. Two options are available to you as a means of identifying the instance when making it visible: Select All or Select by Name.
3. Select the Select by Name option and choose DELTA from the list of instances in the active part.



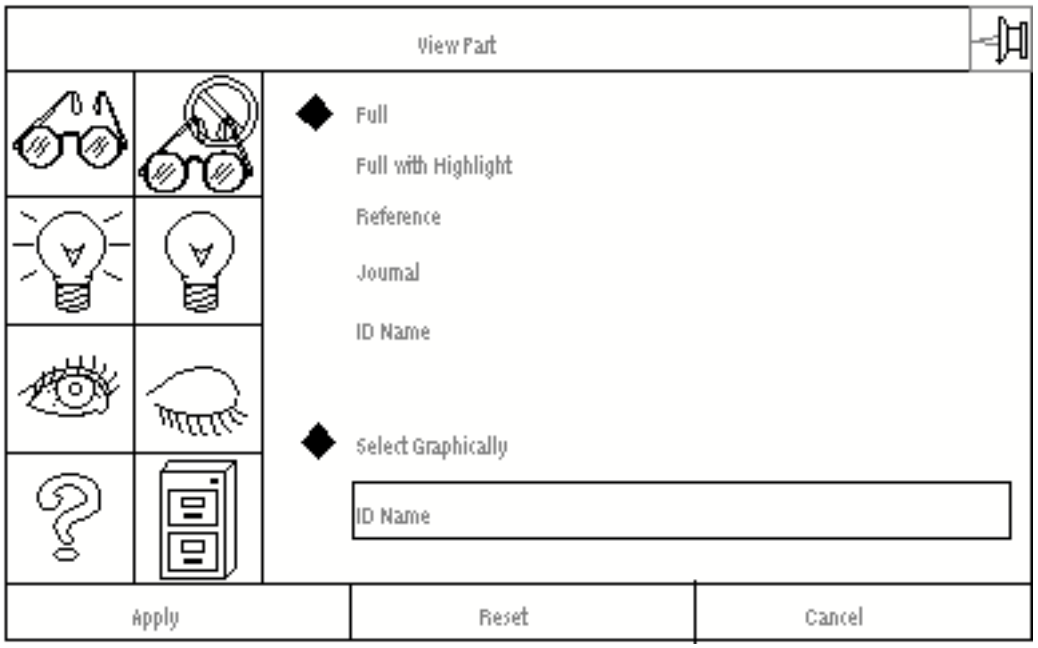
4. Select Apply from the View Part property sheet.

The instance named DELTA will become visible once more.



Listing Information about Instances

The system will supply you with information about one or more of the instances in your display. The option selected determines the type and amount of information displayed.



Full

Lists all available information about all the instances.

Full with Highlight

Lists all available information about all the instances and temporarily highlights the instance as its information is displayed.

Reference

Displays the name of all referenced parts and the number of instances that reference each part.

Journal

Displays the name of the part that the instance references, the user-assigned ID name, and its orientation angles and origin coordinates.

ID Name

Lists all available information about the instance named or selected graphically.

The following examples are based on an active part with a display that contains three instances: ALPHA1, ALPHA2, and BETA.

ALPHA1 and ALPHA2 reference a part named ALPHAPART. BETA references a part named BETAPART.

ALPHA1's orientation angles are AX30.0 AY45.0 AZ0.0;
its coordinates are X0.0 Y0.0 Z0.0.

ALPHA2's orientation angles are AX60.0 AY90.0 AZ0.0; its coordinates are X2.0 Y2.0 Z0.0.

BETA's orientation angles are AX90.0 AY180.0 AZ0.0; its coordinates are X5.0 Y5.0 Z0.0.

Example 1

To list the following information for all of the instances in the active part

- Each instance name
- Name of the part that it references
- Its origin coordinates and orientation angles
- Whether the instance is invisible (blanked) and/or highlighted

1. Select the View Part icon from the Multipart Access task set.
2. Select the List icon on the View Part property sheet.
3. Use the default settings.
4. Select Apply from the View Part property sheet.

   The following appears in the text window.

```
. IDname ALPHA1
. References ALPHAPART
Origin: OX = 0.0 OY = 0.0 OZ = 0.0
Orientation: AX = 30.0 AY = 45.0 AZ = 0.0
Blanked: NO
Halted: NO

. IDname ALPHA2
. References ALPHAPART
Origin: OX = 2.0  OY = 2.0  OZ = 0.0
Orientation: AX = 60.0  AY = 90.0  AZ = 0.0
```

```
Blanked:  NO
Hilited:  NO

. IDname BETA
. References BETAPART
Origin: OX = 5.0  OY = 5.0  OZ = 0.0
Orientation: AX = 90.0  AY = 180.0  AZ = 0.0
Blanked:  NO
Hilited:  NO
```

5. Select Done from the Utilities menu.

Example 2

To list the names of all referenced parts and the number of instances that reference each part

1. Select the View Part icon from the Multipart Access task set.
2. Select the List icon on the View Part property sheet.
3. Select the Reference option from the list of options that are available.
4. Select Apply from the View Part property sheet.

   The following appears in the text window.

```
ALPHAPART is referenced by 2 instances

BETAPART is referenced by 1 instances
```

5. Select Done from the Utilities menu.

Example 3

To list the name of the part that the instance references, the instance's user-assigned ID name, and its orientation angles and origin coordinates

1. Select the View Part icon from the Multipart Access task set.
2. Select the List icon on the View Part property sheet.
3. Select the Journal option from the list of options that are available.
4. Select the ID name option and select BETA from the list of available instances in the part.
5. Select Apply from the View Part property sheet.

   The following appears in the text window.

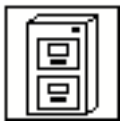
```
VIEW PART BETAPART
IDname Beta
AX 90.0 AY 180.0 AZ  0.0 :
X 5.0 Y 5.0 Z 0.0
```

AX, AY, and AZ are the instance's orientation angles and the values given define each angle.

X, Y, and Z are the instance's coordinates and the values given define each coordinate.

6. Select Done from the Utilities menu.

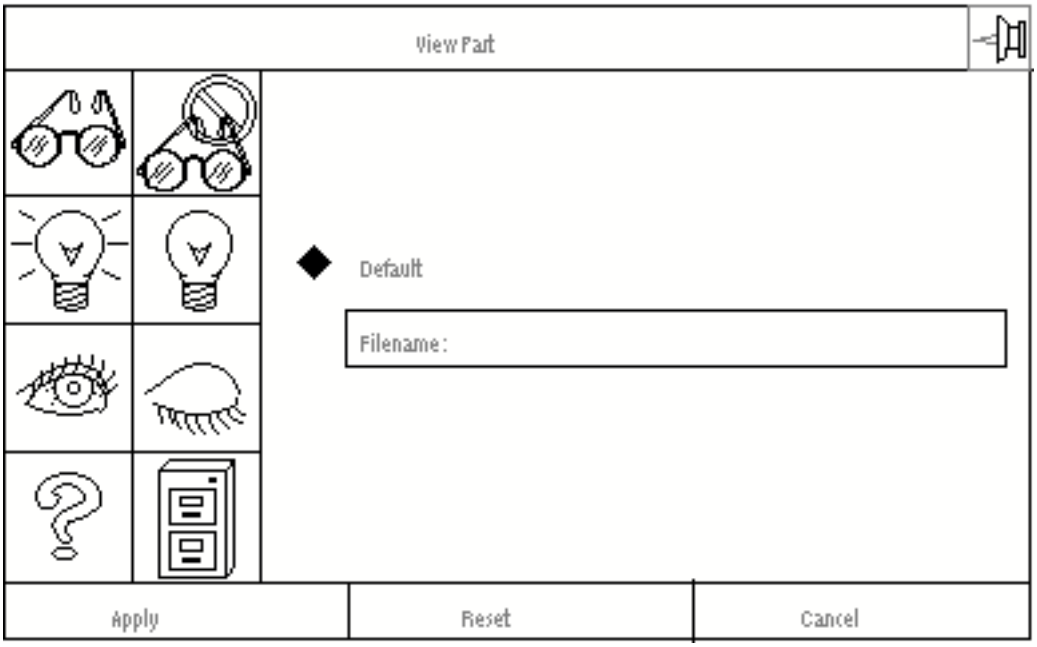
Saving a Display of Instances



Saving a display of instances in the active part creates a command file containing the following information:

- Each VIEW PART instance with the name of the referenced part
- The user-assigned ID name of the instance referencing the part
- The instance's orientation angles and location coordinates

Saving your display in a command file while in the active part is the only way you can restore a display of the instance(s) after exiting from the active part or after a system failure.



There are two ways to name the saved file, and depending on the way you select, the text file is stored either under your Create directory or under the active part.

If the file to be created already exists, the system displays the following message:

```
<filename>  EXISTS
TYPE OK TO OVERWRITE
```

If you type ok, the system overwrites the existing command file. To save separate displays within the active part, assign a unique file name each time you save the display of an instance.

Restoring a Display

There are two ways to regenerate the display of instances that was saved. You can use the By an Execute File option on the View Part property sheet, or use the Run Command File option from the Utility menu found in the top bar.

The name of the command file is based on how you saved the display of the instance. If you have assigned the command file name, only the file name is required. For example, to restore the display saved in the execute file named `DELTA`

1. Select UTILITY from the top bar.
2. Select the Run Command File option from the Utility menu.
3. Enter the name `DELTA` in the File Name field, and select Apply.

If you let the system assign the name to the command file, you must follow the same procedure as above, but enter the <part name>`.vpexecute` instead of the name `DELTA`.

The system executes each Multipart Access action in the file and opens the graphics drawing file for the part(s) referenced by the instance(s).

When you use Run Command File on a file created by View Part Save, make sure that the active Cplane is the TOP CPL.

Saving a Changed Display

Updating a command file is necessary if you want to save information about changes to the saved display; for example, after adding or deleting instances to the display, or changing the location or orientation of an instance in the display.

To update the command file to account for a modified display, use the Save option on the View Part property sheet with the same file name to overwrite the command file. Since the command files are ASCII text files, you can also edit a command file at the system level.

Updating a Display

If a referenced part is updated or modified during your active session, any other instances of that referenced part become outdated. To update a display under these circumstances

1. Save your display in a command file using the Save option on the View Part property sheet and enter a file name.
2. Delete the display using the Delete option on the View Part property sheet with Select All.
3. Restore the display with Run Command File and enter the file name.

Using this procedure to delete all the instances displayed in the active part destroys the model graphics data and links to the referenced parts. Restoring the display with Run Command File causes the View Part command (in the command file) to read the model graphics data from the latest _gr file of that referenced part and links to the referenced parts, displaying the most recently filed version of the referenced parts' model geometry.

In the following two examples of saving a display, the active part is named BRACE.

Example 1

Suppose your Create directory for parts is `/usr/eng/sburns/parts`, and you want to save a display in the active part in this directory:

1. Select the View Part icon from the Multipart Access task set.
2. Select the Save icon from the View Part property sheet.
3. Select Filename from the available options.
4. Enter the name that you want for the execute file. In this case, enter `DELTA`.
5. Select Apply from the View Part property sheet.

   When the system has created the execute file, it responds by displaying the full path name location of this file in the text window.

```
Execute file =USR.ENG.SBURNS.PARTS.&BCD.DELTA.written
```

Example 2

To let the system assign a name to the display you want to save and thus store the file under the active part

1. Select the View Part icon from the Multipart Access task set.
2. Select the Save icon from the View Part property sheet.
3. Select Default from the available options.

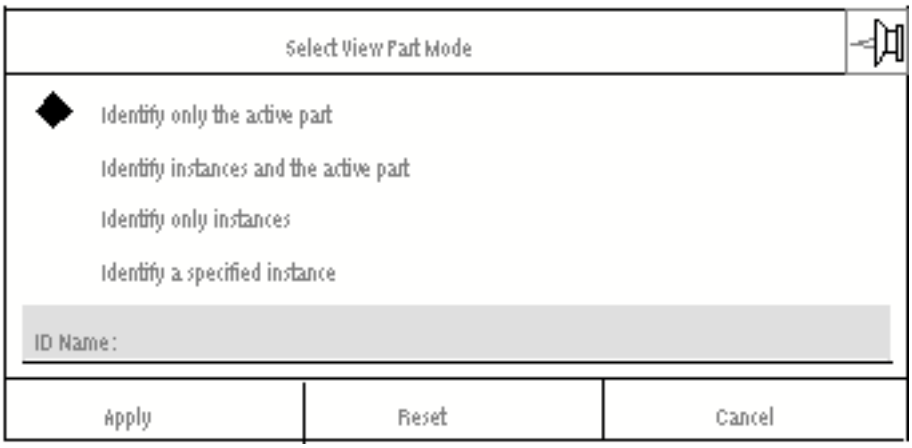
   The system displays the name **.**`vpexecute`.
4. Select Apply from the View Part property sheet.

   When the system has created the execute file, it responds by displaying the full path name location of this file in the text window.

```
Execute file =USR.ENG.SBURNS.PARTS.BRACE.&BCD.vpexecute
written
```

Selecting View Part Modes

You can set up a filter that prioritizes the databases through which the system searches during subsequent actions. The Select View Part Mode property sheet shown below shows the four types of filters that you can choose from.



Example1

To set up a filter to search only the database of an instance named `DELTA`

1. Select the Select View Part Mode icon from the Multipart Access task set.
2. Select the Identify a specified instance option from the Select View Part Mode property sheet.
3. Fill in the name `DELTA` in the ID Name field.
4. Select Apply from the Select View Part Mode property sheet.

   The following appears in the text window.

   ```
   selected VPMode is VP DELTA
   ```

If you then select an entity-specific option (Query icon from the top bar), you get information on the instance named `DELTA` if it is named or selected as part of this operation. If on the other hand, you try to select another instance or a graphic in the active part, the system backslashes the selection.

Example 2

To set up a filter to identify instances only

1. Select the Select View Part Mode icon from the Multipart Access task set.
2. Select the Identify only instances option from the Select View Part Mode property sheet.
3. Select Apply from the Select View Part Mode property sheet.

   The following appears in the text window.

```
Selected VPMode is VPE
```

If you then select an entity-specific option (Query icon from the top bar selecting the middle icon on the bottom row), you get only the information on the instances selected in the part. If you select graphic data from the active part, the system backslashes the selection.

Listing View Part Modes

Once you have set up the filter that prioritizes the databases through which the system searches during subsequent actions, you can verify the mode you have selected.

One of four modes will be printed out in a message in the text window.

VPO

Identifies only the active part

VPALL

Identifies instances and the active part

VP

ExclusiveIdentifies only instances

VP

Identifies a specified instance

Example

To list the active View Part mode, select the Query icon from the main View Part menu.

If you have asked the system to use the filter to identify only instances in the Select Mode icon, the message in the text window will be

```
Selected VPmode is VPExclusive
```

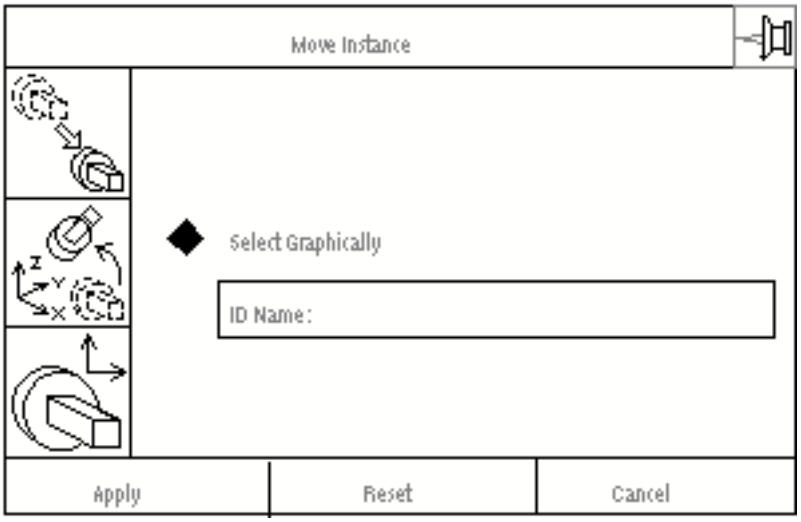
Repositioning Instances

Instances within an active part can be repositioned in three ways. They can be moved, rotated, or oriented (a combination of move and rotate).

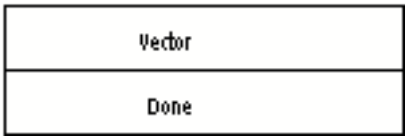
The Move Instance property sheet shown below comes from the Move icon on the Multipart Access task set. It contains the information necessary to move, rotate, or orient (move and rotate in one operation) an instance within an active part.

The property sheet changes depending on which type of repositioning you select. They are both shown here.

When you select the Move icon (top left icon) on the property sheet, the following is displayed.



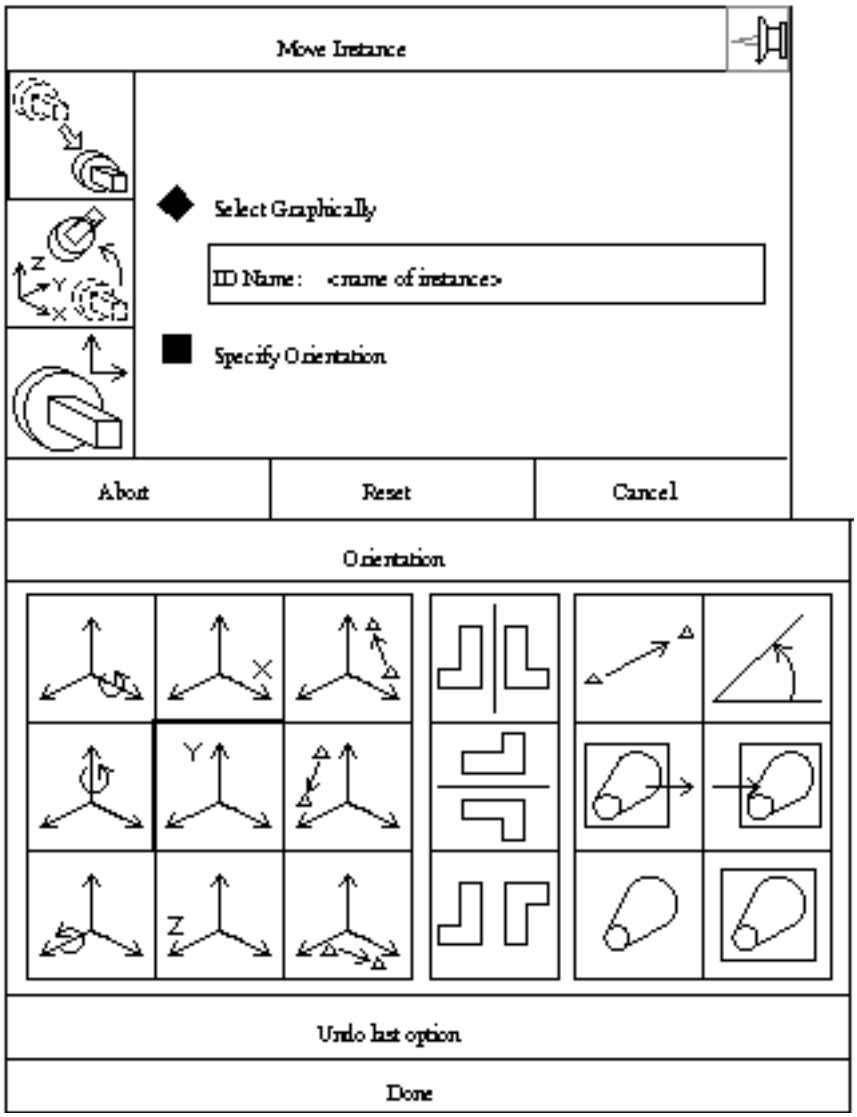
When you choose Select Graphically, the following two selections appear below Apply for your use during the move operation. If you select ID Name, only Done appears.



When you choose the ID Name option for any of the options on the Move Instance property sheet, the following appears.

You can select a name from the list of choices, or enter the ID Name in the field.

When you select either of the other options, rotating or orienting (middle and lower left icons) the property sheet on the following page appears. After you specify an ID Name, and select Apply on the lower-left, the word Apply changes to Abort and the Orientation property sheet appears.



How to use the Orientation property sheet is explained at the beginning of this chapter. It is shown here so that you can get an idea of how and where it appears on the screen.

Moving Instances

The following example moves an instance in 3D space.

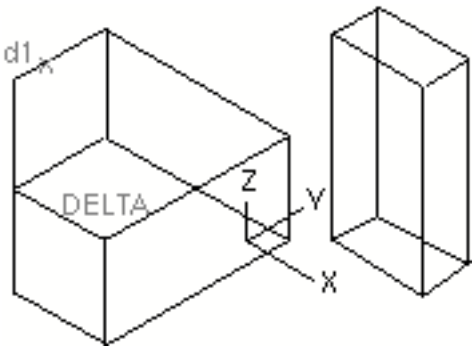
The Cplane arrows are illustrated in this example to show you exactly how the instance is moved along the specified vector.

Example

To move a selected instance

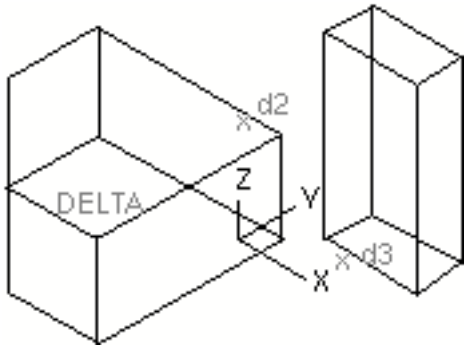
1. Select the Move icon from the Multipart Access task set.
2. Select the Move icon on the Move Instance property sheet.
3. Select the Select Graphically option.
4. Select Apply from the property sheet. The following appears below Apply.

5. Select the instance that you want to move.

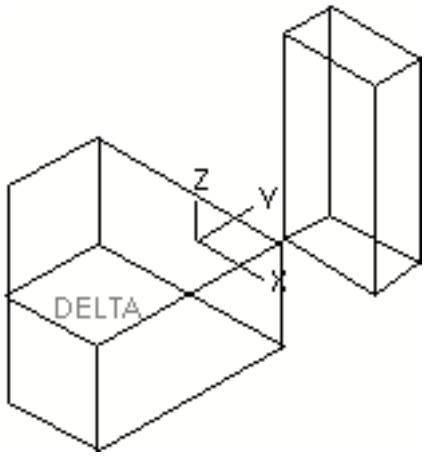


6. Select Vector from the list below the property sheet.
7. Select VPE from the top bar (mask) and END from the side bar.

8. Select two points that will define the specified vector for the movement of the instance.



9. Select Done from the list below the property sheet.



Rotating Instances

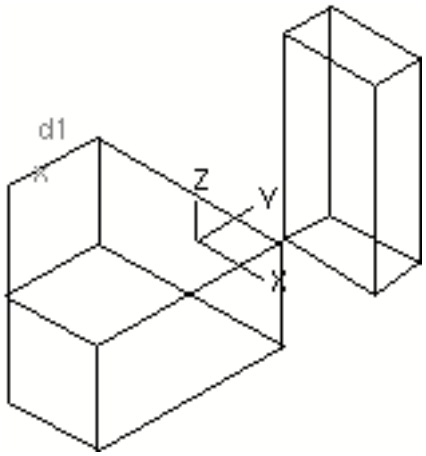
The following examples rotate instances in 3D space.

Example 1

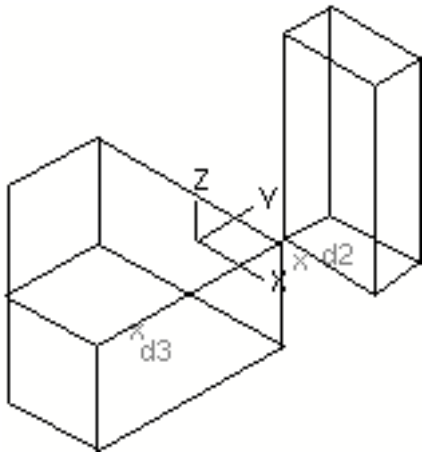
To rotate a selected instance using the implicit form

1. Select the Move icon from the Multipart Access task set.
2. Select the Rotate icon on the Move Instance property sheet.
3. Select Apply from the property sheet.

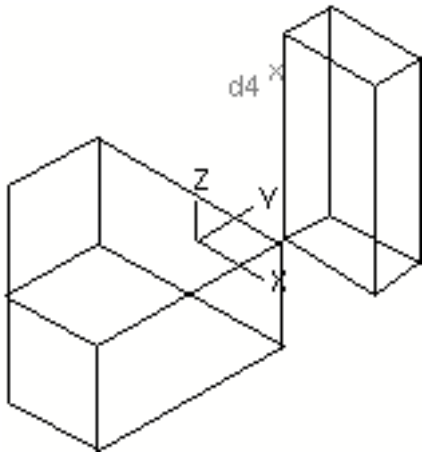
4. Select the instance that you want to rotate.



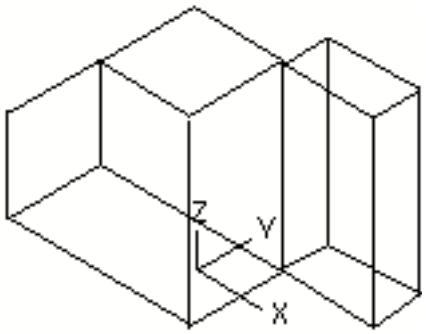
5. Select Next from the Utilities menu.
6. Select END from the side bar.
7. Select two locations that will define the rotation around an arbitrary axis in 3D space. The first location is the center of the rotation axis, and the second defines the start of the rotation.



8. Select LOC from the side bar. LOC is used to change the point-on-entity reference from END back to location coordinates. Select the end of the rotation.



9. Select Done from the Utilities menu.

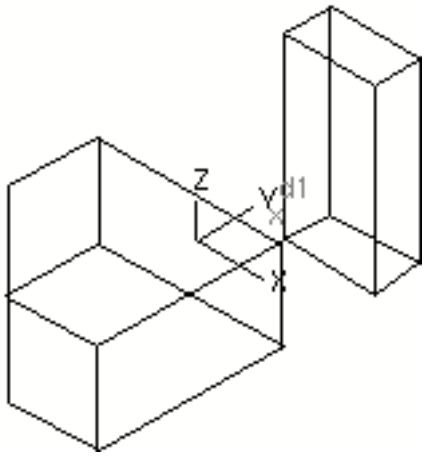


Example 2

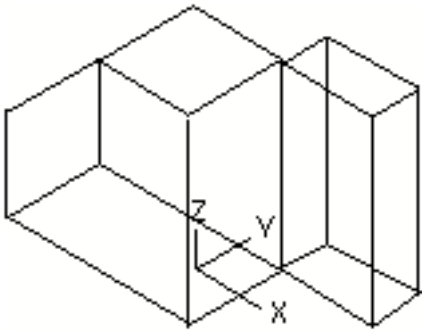
To rotate a selected instance using the explicit form

1. Select the Move icon from the Multipart Access task set.
2. Select the Rotate icon on the Move Instance property sheet.
3. Enter the name DELTA in the ID Name field.
4. Select Specify Orientation on the Move Instance property sheet.
5. Select Apply. The Orientation property sheet appears just below the Move Instance property sheet.
6. Select the AX icon to specify that you want to rotate the instance about the x-axis.
7. A scientific calculator appears over the Orientation property sheet.
8. Enter the value -90 for the rotation. Select the entry field on the calculator and it disappears.

9. Select Done from the Orientation property sheet.
10. Select VPE from the top bar (mask) and END from the side bar.
11. Select the location for the center of rotation (90 degrees about the x-axis).



12. Select Done from the Utilities menu.

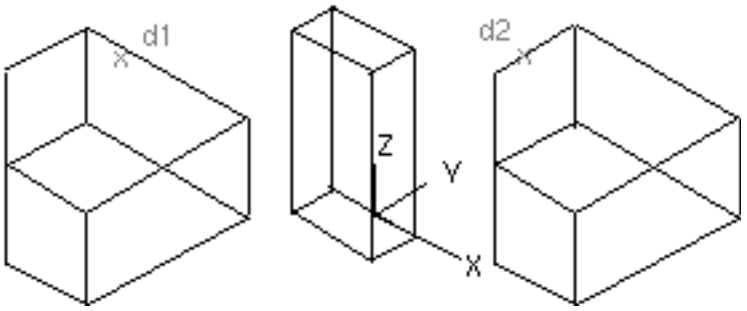


Example 3

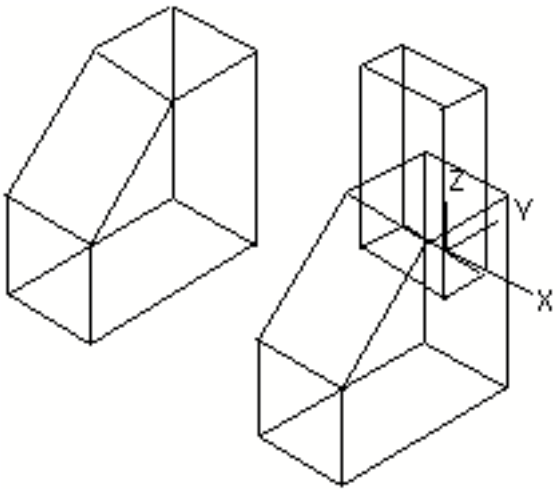
To rotate two selected instances using PZ from the Orientation property sheet

1. Select the Move icon from the Multipart Access task set.
2. Select the Rotate icon on the Move Instance property sheet.
3. Select Specify Orientation on the Move Instance property sheet.
4. Select Apply. The Orientation property sheet appears just below the Move Instance property sheet.
5. Select the PZ icon on the Orientation property sheet.
6. Select +X from the direction menu to specify that you want the z-axis pointed in the positive x-axis direction.
7. Select Done from the Orientation property sheet.

8. Select the instances that you want to rotate.



9. Select Next from the Utilities menu.
10. Select the Coordinate Keypad from the side bar.
11. Select the X,Y,Z option and using the calculator, enter -5 in the X field and -5 in the Y field.
12. Select Done from the Utilities menu.



Orienting Instances

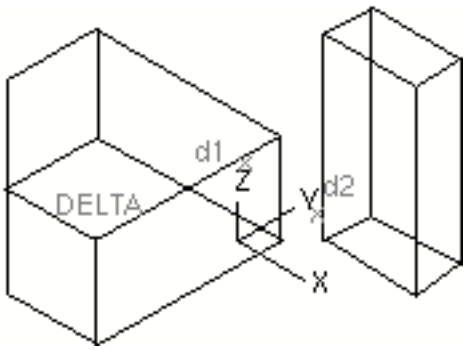
The following examples orient (move and rotate) instances in 3D space.

Example 1

To orient a named instance using the point-on-entity constraint END

1. Select the Move icon from the Multipart Access task set.
2. Select the Orient icon on the Move Instance property sheet.
3. Enter the name DELTA in the ID Name field.

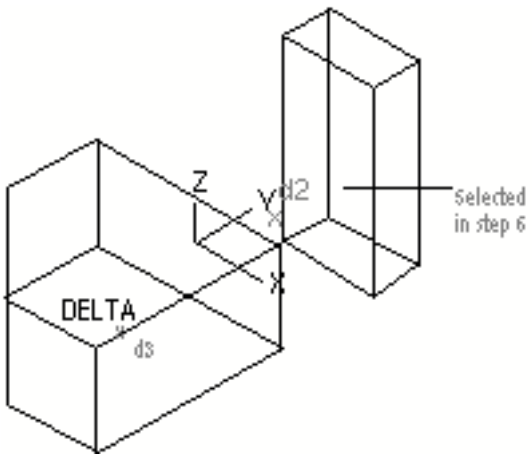
4. Select Apply from the property sheet.
5. Select VPE from the top bar and END from the side bar.
6. Select a point on the instance as the start of the vector, then choose another point as the end of the vector. (This location is also used in the 2D rotation.) These two locations define the new location for the instance after it is moved along the vector.



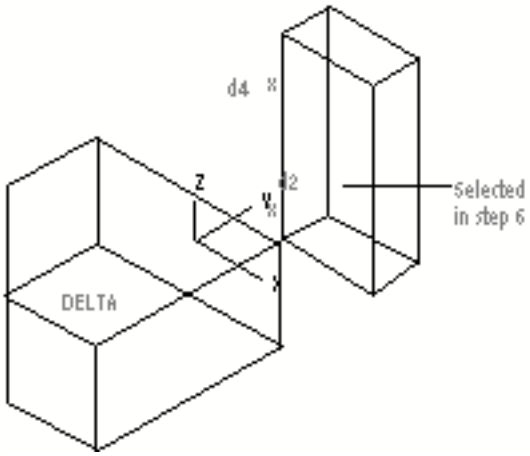
7. Select END from the side bar.

   The next two selections define the angular displacement for the first rotation (2D rotation), where the center is the second point selected in step 6, and you are creating the center of rotation for the second rotation.

8. Select a location as the end of the rotation vector before rotation. It is preferable that you choose a point on the instance, since your second point in step 6 is the center of rotation, and the second point and this point define the starting position of the rotation vector.



9. Select a location as the end of the rotation vector after rotation. The ending position of the rotation vector is defined by the second location selected in step 6 and this selected location. This vector also defines the axis for the second rotation (3D rotation).

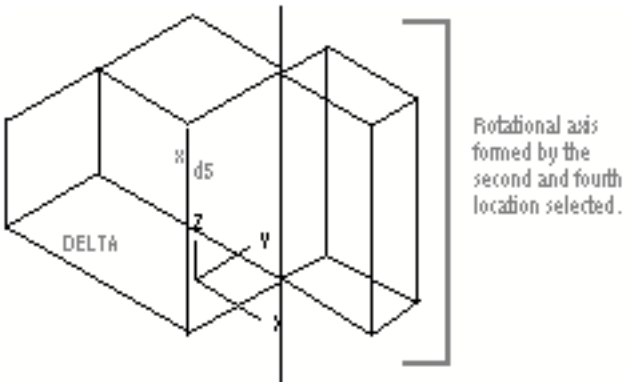


The instance is rotated around the second location from the third location to the fourth location.

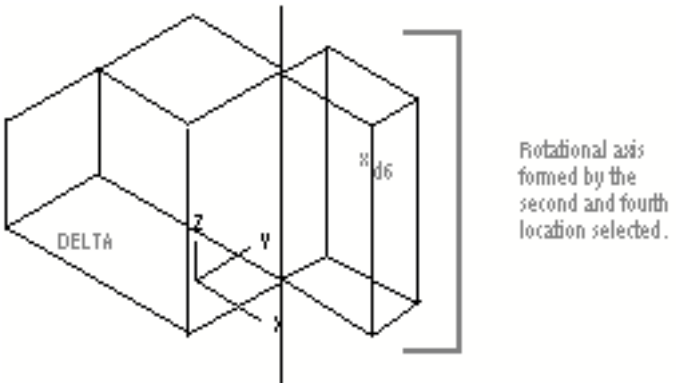
10. Select END from the side bar.

The next two selections define the angular displacement for rotation around the axis formed by the second and fourth locations. The next two locations are points on normals to the plane that is perpendicular to the line defined by the second and fourth locations.

11. Select a location as the end of the rotation vector before rotation. It is preferable that you choose a point on the instance. Since the second and fourth locations selected form the rotation axis, the plane formed by this location and the second and fourth locations defines the starting position of the rotation vector.

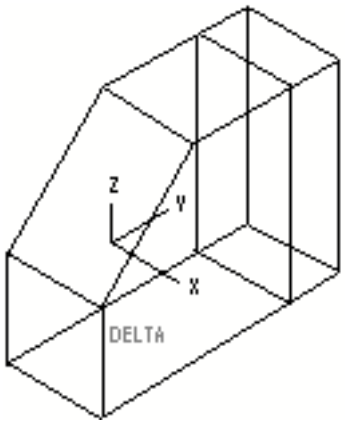


12. Select a location as the end of the rotation vector after rotation. Since the second and fourth locations selected form the rotation axis, the plane formed by this location and the second and fourth locations defines the ending position of the rotation vector.



The instance is then rotated around the rotation axis from the fifth location (step 7) to the sixth location (step 8).

13. Select Done from the Utilities menu.



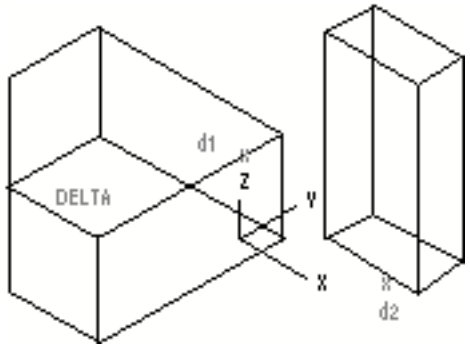
Example 2

This example produces the same results as the first example. In this case, the use of PZ affects the first rotation and the value of one points the z-axis in the direction of the x-axis to complete the orientation.

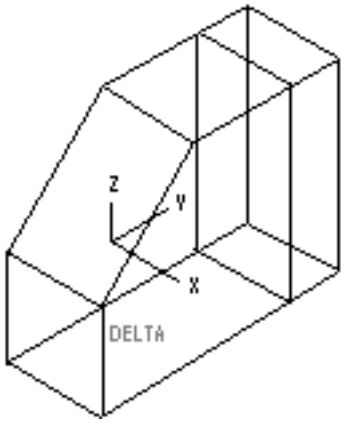
To orient a named instance using PZ from the Orientation property sheet and the point-on-entity constraint END

1. Select the Move icon from the Multipart Access task set.
2. Select the Orient icon on the Move Instance property sheet.
3. Enter the name DELTA in the ID Name field.

4. Select Specify Orientation on the Move Instance property sheet.
5. Select Apply. The Orientation property sheet appears just below the Move Instance property sheet.
6. Select the PZ icon on the Orientation property sheet.
7. Select +X from the direction menu to specify that you want the z-axis pointed in the positive x-axis direction.
8. Select Done from the Orientation property sheet.
9. Select END from the side bar.
10. Select two locations to define the translation vector. Remember that you have specified that the z-axis is to be pointed in the direction of the x-axis.



11. Select Done from the Utilities menu.

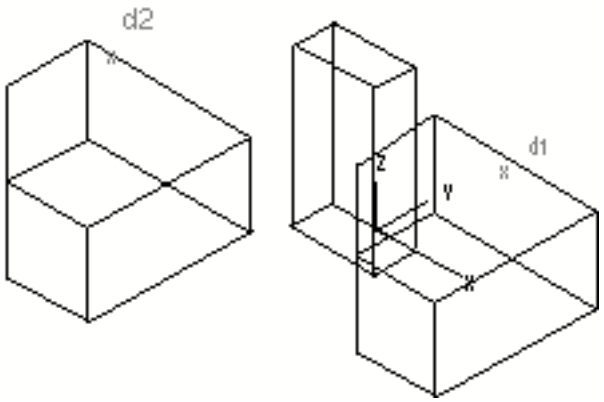


Example 3

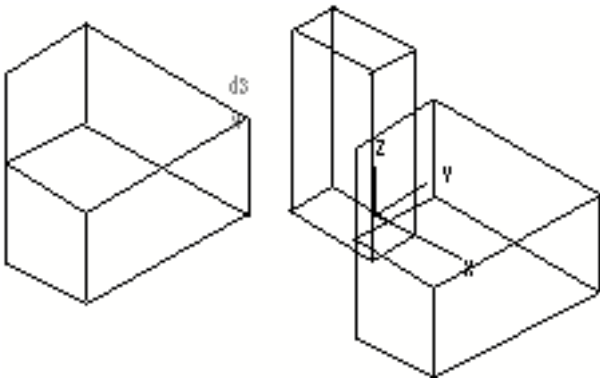
To move and rotate selected instances using PZ from the Orientation property sheet and the point-on-entity constraint END

1. Select the Move icon from the Multipart Access task sheet.
2. Select the Orient icon on the Move Instance property sheet.

3. Select Specify Orientation on the Move Instance property sheet.
4. Select Apply. The Orientation property sheet appears just below the Move Instance property sheet.
5. Select the PZ icon on the Orientation property sheet.
6. Select +X from the direction menu to specify that you want the z-axis pointed in the positive x-axis direction.
7. Select Done from the Orientation property sheet.
8. Select the two instances that you want to move and rotate.

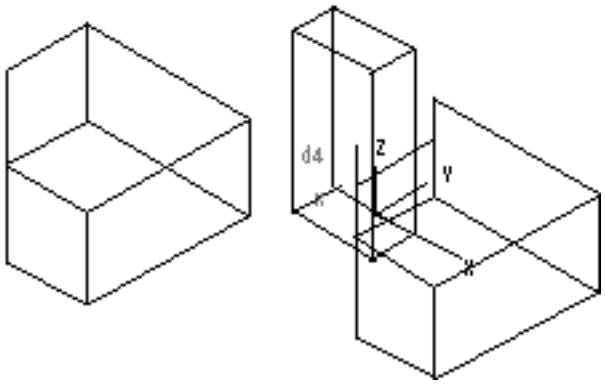


9. Select Next from the Utilities menu.
10. Select a location to define the starting point of the translation vector.

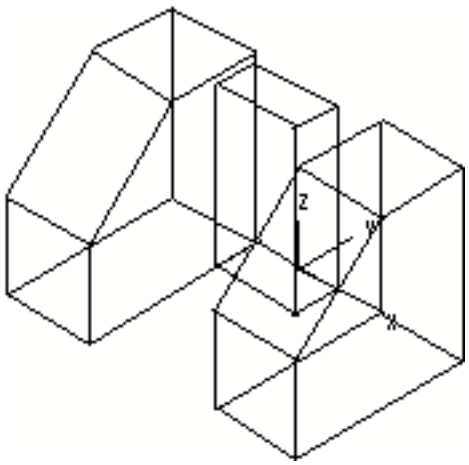


11. Select END from the side bar.

12. Select a location to define the ending point of the translation vector.



13. Select Done from the Utilities menu twice.



Appendix A

System Messages

The following appendix serves as a reference guide for standard system messages. System messages are listed in alphabetical order. After each message, there is a short paragraph describing each entry. This paragraph is followed by the input command string to which the system is responding.

- Multipart Access System Messages

Multipart Access System Messages

A

```
Attempt to modify view part entity was not allowed.
```

You cannot use a core CADDS command to modify an entity within an instance. Instances are considered a single entity.

C

```
Cannot create either instance or part reference.
```

CADDS cannot display the instance. You may have displayed the maximum number of instances or created the maximum number of part references allowed in an active part, or your system may not have enough memory allocated for CADDS to execute the command.

```
VIEW PART <partname>
Cannot create execute file.
```

CADDS cannot create the execute file, which may indicate that your system does not have enough memory allocated for CADDS to execute the command.

```
VIEW PART SAVE
Cannot display instance.
The referenced part is double part-format while the active part is
single part-format. Part formats cannot be mixed.
```

Exit the active part and reformat the part to double-precision with the REFORMAT PART command. Then reactivate the part and re-enter the command.

```
VIEW PART <partname>
Cannot display instance.
The reference part is single part-format while the active part is
double part-format. Part formats cannot be mixed.
```

The referenced part must be reformatted to double-precision before you can display an instance of it in the active part.

```
VIEW PART <partname>
Cannot generate IDname.
```

CADDS was unable to assign an ID name. Re-enter the command and assign an ID name.

```
VIEW PART <partname>
Cannot open part.
```

CADDS cannot access the referenced part, which may indicate that the part referenced is a new, uncommitted part, and you cannot access the geometry of the part until it has been filed.

```
VIEW PART <partname>
```

I

```
IDname already in use.
```

The ID name is already assigned to an instance in the active part. You can use VIEW PART LIST to list the ID names of all the instances in the active part, and re-enter the command with a different ID name. You can also re-enter the command without assigning an ID name, and CADDS, by default, will assign a unique ID name.

```
VIEW PART <partname> <ID name>
Invalid IDname.
```

You specified an invalid ID name. You can use VIEW PART LIST to list the ID names of all the instance in the part, and re-enter the command with the correct ID name. If you are using a modifier that allows you to digitize instances, you also can re-enter the command and digitize the instance.

```
ORIENT INSTANCEROTATE INSTANCE
SELECT VPMODETRANSLATE INSTANCE
VIEW PART
```

N

```
No instances exist
```

There is no display of instances in the active part.

```
VIEW PART LIST
```

P

```
Part found but cannot be opened.
This could mean part is new and has not been filed yet.
```

CADDS cannot access the referenced part, which may indicate that the part referenced is a new, uncommitted part, and you cannot access the geometry of the part until it has been filed.

```
VIEW PART <partname>
```

S

```
Specified instance does not exist.
```

You specified an ID name that does not exist. You can use VIEW PART LIST to display the ID names of all instances in the active part, and re-enter the command with the correct ID name . If you are using a modifier that allows you to digitize instances, you also can re-enter the command and digitize the instance.

```
ORIENT INSTANCEROTATE INSTANCE
SELECT VPMODETRANSLATE INSTANCE
VIEW PART
```

T

```
This is not a part file therefore not viewable.
```

The file name entered to reference a part is not a part file.

```
VIEW PART <partname>
To enable this command the system manager
should run the script caddsenabvp.
```

The part you want to reference does not have `vp_links` directory at its `_pd` file level. Contact your system manager to add the directory to the part.

```
VIEW PART <partname>
To enable this command the unix permission must be
changed on the (vp_links) directory.
```

The `vp_links` directory permissions for the part you tried to reference have been altered. Contact your system manager to change the permissions.

```
VIEW PART <partname>
```

U

```
Unable to display CADDShade file for view part. CADDShade
file is out of date with wire-frame file.
```

CADDS displays only the wireframe graphics data from the `_gr` file of the referenced part, because the tessellation data within the `_gr` file is out of date.

```
VIEW PART <partname>
Unable to identify drawing from the specified part.
This could mean the part is from an older version of CADDS.
```

CADDS cannot reference the part. If the part you tried to reference is from an older version of CADDS, you cannot create an instance of it.

```
VIEW PART <partname>
Unable to open CADDShade file for view part. File does
not exist.
```

The file name entered does not exist, which may indicate that the active CADDSPATH does not contain the CADDShade file directory.

```
VIEW PART <partname>
Unable to open drawing for specified part.
This could mean the drawing file does not exist.
```

CADDS cannot locate the referenced part's drawing file. Check to see if the drawing file exists.

```
VIEW PART <partname>
```

V

```
The (vp_links) directory is not empty.  The specified part is
possibly being viewed by you or another user. By executing this
command you will delete this viewed part.
```

Y

```
You did not specify required modifier, or you specified an invalid
modifier.
```

If you do not enter a colon and digitize, the OFF, BLANK, UNBLANK, HILITE, and DEHILITE modifiers require the second-level modifier ALL or IDNAME.

```
VIEW PART
```

Appendix B

Notes to the System Administrator

This appendix contains notes and tips that will be of interest to the System Administrator. Topics covered in this appendix include adding `vp_links` directories, recovering a display and product notes.

- Adding vp_links Directories
- Recovering a Display
- Product Notes

Adding vp_links Directories

Multipart Access requires that a View Part Links *(*`vp_links`*)* directory reside in every referenced part's database at its `_pd` file level. This directory provides the proper permissions (drwxrwxrwx) to ensure access to the referenced part.

You can create `vp_links` directories for new or existing parts.

Creating vp_links Directories for New Parts

To create `vp_links` directory automatically for each new part, use the CADDSENABVP variable. Edit the CADDS user's `.caddsrc` file and add the following command line:

```
setenv CADDSENABVP 'yes'
```

The value `yes` enables the automatic creation of the `vp_links` directory for new parts.

Creating vp_links Directories for Existing Parts

If Multipart Access is used with an existing part that does not have the necessary `vp_links` directory, the directory can be created with the UNIX command script, `caddsenabvp`.

At UNIX level, enter the following command:

```
% caddsenabvp partname
```

This adds the `vp_links` directory to the part named.

To add the `vp_links` directory to all parts in a directory,

```
% caddsenabvp -r directoryname
```

You can also create the `vp_links` directory for a single part with the following procedure:

1. Change to the `_pd` directory level of the part you want to reference with Multipart Access and create a `vp_links` directory.

```
% mkdir vp_links
```

2. Change the `vp_links` permission scheme to 777.

```
% chmod 777
```

Recovering a Display

If a display of instances was saved to a command file with the Save option on the View Part property sheet before a system failure, the display can be recovered with the Run Command File option. When the command file containing the saved display is run, the system creates new links to the referenced part's database.

Recovering a display of instances is also covered in Chapter 2, Using Multipart Access.

Removing Hard Links

Multipart Access creates hard links to a referenced part's database. If one or more instances are displayed in an active part and the system fails, the hard links remain and must be removed. These links do not need to be removed immediately. You can remove them during routine disk cleanup.

Product Notes

The following notes are provided for System Administrators so that they can partition systems to maximize space.

The total number of instances that can be displayed in an active part depends on several variables, including the number of entities in the referenced part and the system's SWAP space configuration. The company has tested up to 14,000 instances of one part with 32,000 entities.

While instances do not impact database size, they may impact performance. For example, instances impact how quickly CADDS executes the REPAINT command: the more instances displayed and/or the more entities within instances displayed, the longer CADDS takes to repaint.

Index

C

Changing appearance of instances 2-13
creating vp_links directory 1-11
  for existing parts B-2
  for new parts B-2

D

Definition
  instance 1-3
  Multipart Access 1-2
  tag 1-6
Display 1-3
Documentation, printing from Portable Document Format (PDF) file 1-x

I

Instances 1-3
  changing appearance 2-13
    dehighlighting 2-16
    making invisible 2-17
    making visible 2-18
  deleting 2-13
  display
    restoring 2-25
    saving 2-24
    saving changed display 2-25
    updating 2-26
  echoing layers 1-8
  extents 1-8
  fonted 1-7
  highlighting 2-15
  listing Information 2-20
  listing modes of access 2-30
  referenced part characteristics
    layering scheme 1-8
    surface appearance graphics 1-8
  repositioning 2-31
    by moving 2-34
    by orienting 2-39
    by rotating 2-35
  selecting modes of access 2-28
  viewing 2-10

L

Listing View Part Mode 2-30

M

Move Instance property sheet 2-31
  accessing 2-3
  moving (translating) using Select Graphically option 2-34
  moving instances 2-31
  orienting (moving and rotating) 2-31
    using ID name and Specify Orientation options 2-42
    using ID name option 2-39
    using Specify Orientation option 2-43
  orienting instances 2-39
  rotating

selecting two instances 2-38
using ID name option 2-37
using Specify Graphically option 2-35
Multipart Access 1-2
aids 1-5
filters 1-5
VP 1-5
VPALL 1-5
VPE 1-5
example of use when rotating 2-37
VPOFF 1-5
functions 1-3
getting started requirements 1-11
global options
clipping 1-9
dimensioning 1-9
dynamic viewing 1-9
plotting 1-9
how it works 1-3
point-on-entity constraints
END 1-5
examples 2-35, 2-40
INTOF 1-5
NEAR 1-5
ORG 1-5
SVAL 1-5
VERT 1-5
tags 1-6
restrictions 1-6
using with Imagedesign II 1-9
using withCADDShade II 1-10

O

Orientation Option property sheet 2-4
Undo option 2-5
used with Move Instance property sheet 2-33
orienting examples 2-42, 2-43
rotating examples 2-37, 2-38
used with View Part property sheet 2-8

P

Point-On-Entity constraints 1-5
Printing documentation from Portable
Document Format (PDF) file 1-x
property sheets
Move Instance 2-31
Multipart Access 2-3
Orientation 2-4
Select View Part Mode 2-28
examples 2-28, 2-29
View Part 2-4, 2-8
dehighlighting 2-13
deleting 2-13
examples 2-10, 2-11
highlighting 2-13
listing information about instances 2-20
making an instance invisible 2-13
making an instance visible 2-13
saving a display of instances 2-24
viewing 2-10

R

Referenced part 1-3
Repositioning Instances 2-31

S

Select View Part Mode property sheet 2-28
accessing 2-3

V

View Part modes
listing 2-30
selecting 2-28
View Part property sheet 2-4
changing the appearance 2-13
changing the appearance of
deleting an instance 2-14
examples 2-14, 2-15
Dehighlighting Instances 2-16
listing information about instances 2-20
example 2-21
saving a display 2-24, 2-26
examples 2-26, 2-27
viewing instances
default option 2-8

examples 2-10, 2-11
Viewing Instances 2-10
vp_links directory
recovering B-3
removing B-3